



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,743	06/30/2000	Jerrell P. Hein	75622.P0018	1566
22503	7590	02/09/2006		
DAVIS & ASSOCIATES P.O. BOX 1093 DRIPPING SPRINGS, TX 78620			EXAMINER BRINEY III, WALTER F	
			ART UNIT	PAPER NUMBER
			2646	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,743

Applicant(s)

HEIN ET AL.

Examiner

Walter F. Briney III

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 13, 14, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>23 January 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the field effect transistors" of claims 4, 8, 11 and 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-3, 5-7, 9, 10, 12, 15, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosch et al. (US Patent 5,274,702) in view of Robe (US Patent 4,151,482).**

Claim 1 is limited to "a method." The Rosch reference discloses a telephone line interface circuit (i.e. "subscriber line interface circuit or SLIC") that receives an "outgoing audio signal" from the central office (CO) on the receive line (figure 1, element 22), which is coupled to the subscriber line (figure 3, element 36) through a circuit with amplifier circuits (figure 3, elements 104, 106, 132, and 134). It is noted that Rosch is silent as to the construction of the amplifier circuits, only disclosing that they comprise operational amplifiers. Two of these amplifiers, 132 and 134, are coupled in the so-called voltage-follower configuration. It is further noted that this disclosure does not anticipate "coupling the audio signal to the subscriber line with transistors coupled in the common base configuration" as recited. However, this deficiency may be overcome by an obvious modification.

In particular, one of ordinary skill in the art would have been inherently motivated to find a teaching of how to construct an operational amplifier or to simply use a known operational amplifier. To this end, Robe teaches a folded-cascade amplifier with a differential construction that corresponds to the amplifiers 132 and 134 of Rosch. Specifically, two inputs, IN and IN_BAR, are provided as well as a single-ended output,

OUT. The output of the amplifier is provided in part by a common-base stage comprising transistors Q3 and Q4. See figures 1-4. BJT transistors, such as those taught by Robe, are unidirectional. Thus, transistors Q3 and Q4 will prevent any current backflow from the subscriber line 36. They inherently "provide DC isolation from the subscriber line for a source of the audio signal."

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a wideband telephone line interface circuit's DC buffer amplifiers with the amplifier as taught by Robe simply because Rosch fails to separately enable an alternative design.

Claim 2 is limited to "the method of claim 1," as covered by Rosch in view of Robe. "Linefeed driver control signals," in one sense, are provided to the positive input of each amplifier 132 and 134 by way of controllable current sources 142, 144, 148 and 150. The currents from these sources merge with the audio signal current received through capacitors 136 and 138, such that the "linefeed driver control signals" and "outgoing audio signal" are received on the same signal lines. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 3 is limited to "the method of claim 1," as covered by Rosch in view of Robe. The transistors Q3 and Q4, as taught by Robe, are clearly bipolar junction transistors. See column 3, line 2, and column 4, line 12. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 5 is limited to "a method" comprising essentially the same steps as claim 2, as covered by Rosch in view of Robe, and is rejected for the same reasons.

Claim 6 is limited to “the method of claim 5,” as covered by Rosch in view of Robe. When the currents provided by sources 142, 144, 148 and 150 are coupled to the subscriber loop at connection 36, “battery feed to a tip node and a ring node” is provided. Therefore Rosch in view of Robe makes obvious all limitations of the claim.

Claim 7 is limited to “the method of claim 5,” as covered by Rosch in view of Robe. The transistors Q3 and Q4, as taught by Robe, are clearly bipolar junction transistors. See column 3, line 2, and column 4, line 12. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 9 is limited to “a subscriber line interface circuit apparatus.” Rosch discloses a telephone line interface circuit that comprises a line drive circuit that corresponds to the “first circuit” as recited. The line drive circuit receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. The line drive circuit includes two amplifiers 132 and 134. While the construction of these amplifiers is not disclosed by Rosch, it was shown apropos the rejection of claim 1 that it would have been obvious to construct these amplifiers using an amplifier including at least one common base stage as taught by Robe. This stage inherently isolates the audio signal source from the line in the manner noted in the rejection of claim 1. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 10 is limited to “the apparatus of claim 9,” as covered by Rosch in view of Robe. The transistors Q3 and Q4, as taught by Robe, are clearly bipolar junction transistors. See column 3, line 2, and column 4, line 12. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 12 is limited to “the apparatus of claim 9,” as covered by Rosch in view of Robe. Rosch discloses two circuits, one (142, 144) for controlling the tip line and one (148, 150) for controlling the ring line of a subscriber loop, where each circuit is controlled by two signals (154/156, 162/164), such that the tip/ring node voltage increases in response to one signal and decreases in response to the other signal (figure 3; column 11, lines 24–48). Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 15 is limited to “a subscriber line interface circuit apparatus.” Rosch discloses a telephone line interface circuit that comprises a line drive circuit that corresponds to the “linefeed driver” as recited. Rosch also discloses a transmission interface 16 that corresponds, in part, to the “signal processor” as recited. The line drive circuit receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. The line drive circuit includes two amplifiers 132 and 134. While the construction of these amplifiers is not disclosed by Rosch, it was shown apropos the rejection of claim 1 that it would have been obvious to construct these amplifiers using an amplifier including at least one common base stage as taught by Robe. This stage inherently isolates the signal processor from the line in the manner noted in the rejection of claim 1. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 16 is limited to “the apparatus of claim 15,” as covered by Rosch in view of Robe. The transistors Q3 and Q4, as taught by Robe, are clearly bipolar junction

transistors. See column 3, line 2, and column 4, line 12. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

Claim 18 is limited to "the apparatus of claim 15," as covered by Rosch in view of Robe. Rosch discloses two circuits, one (142, 144) for controlling the tip line and one (148, 150) for controlling the ring line of a subscriber loop, where each circuit is controlled by two signals (154/156, 162/164), such that the tip/ring node voltage increases in response to one signal and decreases in response to the other signal (figure 3; column 11, lines 24-48). As seen in figure 3, digital control circuit 152, which makes up the other part of the "signal processor" as recited, provides the tip and ring control signals. Therefore, Rosch in view of Robe makes obvious all limitations of the claim.

2. **Claims 1, 2, 4, 5, 8, 9, 11, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosch et al. (US Patent 5,274,702) in view of Pryor et al. (US Patent 4,284,958).**

Claim 1 is limited to "a method." The Rosch reference discloses a telephone line interface circuit (i.e. "subscriber line interface circuit or SLIC") that receives an "outgoing audio signal" from the central office (CO) on the receive line (figure 1, element 22), which is coupled to the subscriber line (figure 3, element 36) through a circuit with amplifier circuits (figure 3, elements 104, 106, 132, and 134). It is noted that Rosch is silent as to the construction of the amplifier circuits, only disclosing that they comprise operational amplifiers. Two of these amplifiers, 132 and 134, are coupled in the so-called voltage-follower configuration. It is further noted that this disclosure does not

anticipate “coupling the audio signal to the subscriber line with transistors coupled in the common base configuration” as recited. However, this deficiency may be overcome by an obvious modification.

In particular, one of ordinary skill in the art would have been inherently motivated to find a teaching of how to construct an operational amplifier or to simply use a known operational amplifier. To this end, Pryor teaches a folded-cascade amplifier with a differential construction that corresponds to the amplifiers 132 and 134 of Rosch. Specifically, two inputs, 2 and 4, are provided as well as a single-ended output, 54. The output of the amplifier is provided in part by a common-base stage comprising transistors N6, P6, N7 and P7. See figure 2. There is no way for current flowing on either the tip or ring of the subscriber line 36 to flow back to the source of audio signals. This is evidenced in figure 2 of Pryor. Output transistors P7 and N7 have no current path back to the input 2. Therefore, the transistors inherently provide “isolation from the subscriber line for a source of the audio signal.”

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a wideband telephone line interface circuit's DC buffer amplifiers with the amplifier as taught by Pryor simply because Rosch fails to separately enable an alternative design.

Claim 2 is limited to “the method of claim 1,” as covered by Rosch in view of Pryor. “Linefeed driver control signals,” in one sense, are provided to the positive input of each amplifier 132 and 134 by way of controllable current sources 142, 144, 148 and 150. The currents from these sources merge with the audio signal current received

through capacitors 136 and 138, such that the "linefeed driver control signals" and "outgoing audio signal" are received on the same signal lines. Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Claim 4 is limited to "the method of claim 1," as covered by Rosch in view of Pryor. The transistors P6, P7, N6 and N7, as taught by Pryor, are clearly field effect transistors coupled in a common gate configuration. See column 3, lines 12-54. Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Claim 5 is limited to "a method" comprising essentially the same steps as claim 2, as covered by Rosch in view of Pryor, and is rejected for the same reasons.

Claim 8 is limited to "the method of claim 5," as covered by Rosch in view of Pryor. The transistors P6, P7, N6 and N7, as taught by Pryor, are clearly field effect transistors coupled in a common gate configuration. See column 3, lines 12-54. Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Claim 9 is limited to "a subscriber line interface circuit apparatus." Rosch discloses a telephone line interface circuit that comprises a line drive circuit that corresponds to the "first circuit" as recited. The line drive circuit receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. The line drive circuit includes two amplifiers 132 and 134. While the construction of these amplifiers is not disclosed by Rosch, it was shown apropos the rejection of claim 1 that it would have been obvious to construct these amplifiers using an amplifier including at least one common base stage as taught by Pryor. This stage inherently

isolates the audio signal from the line in the manner noted in the rejection of claim 1.

Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Claim 11 is limited to "the apparatus of claim 9," as covered by Rosch in view of Pryor. The transistors P6, P7, N6 and N7, as taught by Pryor, are clearly field effect transistors coupled in a common gate configuration. See column 3, lines 12-54.

Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Claim 15 is limited to "a subscriber line interface circuit apparatus." Rosch discloses a telephone line interface circuit that comprises a line drive circuit that corresponds to the "linefeed driver" as recited. Rosch also discloses a transmission interface 16 that corresponds, in part, to the "signal processor" as recited. The line drive circuit receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. The line drive circuit includes two amplifiers 132 and 134. While the construction of these amplifiers is not disclosed by Rosch, it was shown apropos the rejection of claim 1 that it would have been obvious to construct these amplifiers using an amplifier including at least one common base stage as taught by Pryor. This stage inherently isolates the signal processor from the line in the manner noted in the rejection of claim 1. Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Claim 17 is limited to "the apparatus of claim 15," as covered by Rosch in view of Pryor. The transistors P6, P7, N6 and N7, as taught by Pryor, are clearly field effect transistors coupled in a common gate configuration. See column 3, lines 12-54.

Therefore, Rosch in view of Pryor makes obvious all limitations of the claim.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

3. **Claims 13, 14, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

These claims are allowable for at least the reasons set forth in the Non-Final office action filed 23 May 2005.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The new grounds of rejection presented in this Office Action were not necessitated by an amendment by the applicant, and therefore, is Non-Final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2646

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SINH TRAN
SUPERVISORY PATENT EXAMINER

WFB